


NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT Permit Evaluation Review Report

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Public Notice Draft and Final

Permittee: US Army Corps of Engineers Bonneville Lock and Dam	Facility Location: Exit 40, Interstate 84, Cascade Locks OR
Sources Covered: Oil/water separator discharge, stormwater	Receiving Stream: Columbia River
Source Category: Minor Industrial	Proposed Action: Renew NPDES permit
File Information: WQ-Multnomah County File No. 112236 EPA Reference No.: OR 003435-5 Application Date: 19 October 2007 Application No. 973830 Permit No. 102768	Source Contact: Carlton Morris 541/374-4575
Preparer: Elliot Zais, PhD, PE Water Quality Source Control Section Northwest Region 503/229-5292	Date Prepared: 18 January 2008 Preparer Signature: 

Fact sheets are required by EPA regulations to include the following items when applicable.

A brief description of the type of facility or activity which is the subject of the draft permit;

The type and quantity of wastes, fluids, or pollutants which are proposed to be or are being treated, stored, disposed of, injected, emitted, or discharged.

A brief summary of the basis for the draft permit conditions including references to applicable statutory or regulatory provisions and appropriate supporting references to the administrative record required by §124.9 (for EPA-issued permits);

Reasons why any requested variances or alternatives to required standards do or do not appear justified;

A description of the procedures for reaching a final decision on the draft permit including:

- (i) The beginning and ending dates of the comment period under §124.10 and the address where comments will be received;
- (ii) Procedures for requesting a hearing and the nature of that hearing; and
- (iii) Any other procedures by which the public may participate in the final decision.

Name and telephone number of a person to contact for additional information.

Justification for waiver of any application requirements under §122.21(j) or (q) of this chapter.

Any calculations or other necessary explanation of the derivation of specific effluent limitations and conditions or standards for sewage sludge use or disposal, including a citation to the applicable effluent limitation guideline, performance standard, or standard for sewage sludge use or disposal as required by §122.44 and reasons why they are applicable or an explanation of how the alternate effluent limitations were developed.

When the draft permit contains any of the following conditions, an explanation of the reasons that such conditions are applicable:

- (i) Limitations to control toxic pollutants under §122.44(e) of this chapter;
- (ii) Limitations on internal waste streams under §122.45(i) of this chapter;
- (iii) Limitations on indicator pollutants under §125.3(g) of this chapter;
- (iv) Limitations set on a case-by-case basis under §125.3 (c)(2) or (c)(3) of this chapter, or pursuant to Section 405(d)(4) of the CWA;
- (v) Limitations to meet the criteria for permit issuance under §122.4(i) of this chapter, or
- (vi) Waivers from monitoring requirements granted under §122.44(a) of this chapter.

INTRODUCTION

The US Army Corps of Engineers operates and maintains the Bonneville Lock and Dam at RM 141 on the Columbia River. This permit regulates stormwater discharges and discharges from an oil/water separator (OWS) at the facility.

The facility's NPDES permit will expire on 31 December 2007. The proposed permit will expire in 2012.

FACILITY DESCRIPTION AND UPDATE

The OWS is located outside and downstream of the south end of Powerhouse 1 at the Bonneville Lock and Dam project. The OWS has baffled sections and a continuously operating skimmer system. It receives its water input from the Powerhouse south sump via an intermittent running pump/piping system, at a maximum flow rate of 1000 gallons per minute (gpm). Additional water can come via the same pipeline by gravity drain from the powerhouse intake deck transformer containment drains, if there is substantial rainfall occurring (> 2 inches/day). Water inputs to the south sump include turbine top plate leakage pumps, floor drains throughout the powerhouse, and cooling water drains for powerhouse compressors. Total water input into the south sump is a maximum of 600 gpm. This equates to a maximum OWS input/output of 864 000 gallons per day. The renewal application shows an average of 186 000 gpd = 0.29 cfs. The OWS discharge, at a maximum rate of 1000 gpm, is by gravity pipeline into the calm waters of the old navigation lock channel of the Columbia River, downstream of the powerhouse. All of the water going through the OWS is either river water infiltrating the dam structure directly or from the dam's potable water well or is stormwater.

Since the last renewal, the treatment system has been upgraded by the installation of an oil-coalescing screen and a terminal discharge filtration and monitoring system and the construction of a new discharge pipe that empties into the turbulent tail water below the powerhouse. The coalescing screen is located in the OWS structure, upstream of the skimmer and last baffle. The filtration and monitoring system is located on the discharge line from the OWS. The monitoring system continuously monitors the final discharge to the river. If petroleum hydrocarbons are detected, the system diverts water from the normal bypass mode to the first filter (filtration mode) and sends a signal to the control room indicating that the filter has been activated and oil is being removed prior to discharge to the river. If petroleum hydrocarbons are detected a second time, the flow is diverted through the second filter and an alarm is sent to the control room indicating the first filter is fouled and needs to be replaced. If petroleum is detected a third time, before the first filter is changed, a second alarm is sent to the control room and the flow is diverted via an automatic valve to the original discharge pipe that discharges to the old navigation lock channel. The calm waters of the old channel will make remediation of discharged oil possible. The filters are capable of lowering the concentration of petroleum hydrocarbons down to 1 mg/L. Per the renewal application, the average concentration of oil and grease in the discharge from October 2006 through September 2007 is 0.55 mg/L.

UNIQUE OPERATING CONDITIONS AND PROBLEMS

None.

STORMWATER

Stormwater is covered under this permit. This facility is not required to have a stormwater permit based on its SIC code. However, stormwater often ends up going through the oil/water separator. The 2004 renewal permit required that the facility prepare a Stormwater Pollution Control Plan and sample for metals. Based on the results submitted for this renewal, monitoring and reporting requirements from the 1200-Z general stormwater permit will be incorporated into this permit.

GROUNDWATER

Groundwater is not a discharge issue for this facility.

OUTFALL

The current outfall is a pipe discharging into a side channel which flows to the Columbia.

THREATENED AND ENDANGERED SPECIES REVIEW

This section is taken from NOAA-Fisheries' website.

The facility is located within the Lower Columbia River Evolutionarily Significant Unit (ESU). For this ESU, NOAA Fisheries lists the following species as threatened: Chinook salmon (*Oncorhynchus tshawytscha*), Chum salmon (*Oncorhynchus keta*), and steelhead (*Oncorhynchus mykiss*). The Coho salmon (*Oncorhynchus kisutch*) is proposed for listing as threatened.

Chinook Salmon

Listed as threatened on March 24, 1999. An updated status review published on June 14, 2004 proposes that the ESU's status is still threatened and identifies it as including all naturally spawned populations of chinook salmon from the Columbia River and its tributaries from its mouth at the Pacific Ocean upstream to a transitional point between Washington and Oregon east of the Hood River and the White Salmon River, and includes the Willamette River to Willamette Falls, Oregon (exclusive of spring-run chinook salmon in the Clackamas River), as well as seventeen artificial propagation programs: The Sea Resources Tule chinook Program, Big Creek Tule chinook Program, Astoria High School Salmon Trout Enhancement Program (STEP) Tule chinook Program, Warrenton High School (STEP) Tule chinook Program, Elochoman River Tule chinook Program, Spring Creek National Fish Hatchery (NFH) Tule chinook Program, Cowlitz Tule Chinook Program, North Fork Toutle Tule chinook Program, Kalama Tule chinook Program, Washougal River Tule chinook Program, Spring Creek NFH Tule Chinook Program, Cowlitz spring chinook Program in the Upper Cowlitz River and the Cispus River, Friends of the Cowlitz spring chinook Program, Kalama River spring chinook Program, Lewis River spring

chinook Program, Fish First spring chinook Program, and the Sandy River Hatchery (Oregon Department of Fish and Wildlife stock #11) chinook hatchery programs.

CRITICAL HABITAT: Proposed on December 14, 2004 in the following counties: OR—Clackamas, Clatsop, Columbia, Hood River, Multnomah, Wasco, and Washington; WA—Clark, Cowlitz, Klickitat, Lewis, Pacific, Pierce, Skamania, Wahkiakum, and Yakima.

Chum Salmon

Listed as a threatened species on March 25, 1999. The ESU includes all naturally spawned populations of chum salmon in the Columbia River and its tributaries in Washington and Oregon.

CRITICAL HABITAT:

Current Status - Under development. On April 30, 2002, the U.S. District Court for the District of Columbia approved a NMFS consent decree withdrawing a February 2000 critical habitat designation for this and 18 other ESUs.

Steelhead

Listed as a threatened species on March 19, 1998. The ESU includes all naturally spawned populations of steelhead (and their progeny) in streams and tributaries to the Columbia River between the Cowlitz and Wind Rivers, Washington (inclusive) and the Willamette and Hood Rivers, Oregon (inclusive). Excluded are steelhead in the upper Willamette River Basin above Willamette Falls and steelhead from the Little and Big White Salmon Rivers in Washington.

CRITICAL HABITAT:

Current Status - Under development. On April 30, 2002, the U.S. District Court for the District of Columbia approved a NMFS consent decree withdrawing a February 2000 critical habitat designation for this and 18 other ESUs.

Coho Salmon

On July 25, 1995, NMFS determined that listing was not warranted for this ESU. However, the ESU is designated as a candidate for listing due to concerns over specific risk factors. The ESU includes all naturally spawned populations of coho salmon from Columbia River tributaries below the Klickitat River on the Washington side and below the Deschutes River on the Oregon side (including the Willamette River as far upriver as Willamette Falls), as well as coastal drainages in southwest Washington between the Columbia River and Point Grenville. Major river basins containing spawning and rearing habitat for this ESU comprise approximately 10,418 square miles in Oregon and Washington. The following counties lie partially or wholly within these basins: Oregon - Clackamas, Clatsop, Columbia, Hood River, Marion, Multnomah, Wasco, and Washington; Washington - Clark, Cowlitz, Grays Harbor, Jefferson, Klickitat, Lewis, Mason, Pacific, Skamania, Thurston, and Wahkiakum.

CRITICAL HABITAT:

Current Status - not applicable.

Description - not applicable.

POLLUTANTS DISCHARGED AND PROPOSED LIMITS

Pollutants of Concern

The first step in developing a permit is to determine the pollutants of concern that need to be analyzed to conclude whether effluent limits are needed for those pollutants. The major sources of information for this step are the sampling data accumulated by the facility. The wastewater discharged from the dam is regulated for oil and grease and pH. The Department required the facility to collect data on metals. There are no industrial processes going on which would contribute other pollutants to the wastewater. At this time there is no reasonable potential for there to be other pollutants in the wastewater which would exceed water quality standards. Metals will be included in the monitoring requirements for the stormwater portion of the permit.

Technology-Based Effluent Limits 40 CFR 122.44(a) and (e)

These limits are based on effluent limitations and standards promulgated under section 301 of the CWA, or new source performance standards promulgated under section 306 of the CWA, on case-by-case effluent limitations determined under section 402(a)(1) of the CWA, or a combination of the three in accordance with 40 CFR 125.3.

Water Quality-Based Effluent Limits 40 CFR 122.44(d)

These limits are any requirements in addition to or more stringent than promulgated effluent limitations guidelines or standards under sections 301, 304, 306, 307, 318 and 405 of the CWA necessary to achieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality.

The Department is required to set effluent limits for pollutants that may be discharged at levels that cause, or have the reasonable potential to cause, an excursion above any numeric or narrative state water quality standard [40 CFR 122.44(d)(1)(i)]. When determining whether a discharge causes or has the reasonable potential to cause an instream excursion above a narrative or numeric State water quality standard, the Department must account for existing controls on point sources, the variability of the pollutant, and the dilution of the effluent in the receiving water.

340-041-004 Antidegradation Review

In order to issue a permit, the Department must perform a review per the requirements of Oregon Administrative Rules, OAR 340-041-0004. The Department must determine that the discharge will not cause or contribute to any water quality violations before allowing a new mass load discharge. This is not a new or increased load, but the review is still useful. Below is a listing of

the required findings and considerations, followed by the Department's conclusions. Numbered paragraphs are taken from the Oregon Administrative Rules.

(1) Purpose. The purpose of the Antidegradation Policy is to guide decisions that affect water quality such that unnecessary further degradation from new or increased point and nonpoint sources of pollution is prevented, and to protect, maintain, and enhance existing surface water quality to ensure the full protection of all existing beneficial uses. The standards and policies set forth in OAR 340-041-0007 through 340-041-0350 are intended to supplement the Antidegradation Policy.

Conclusion. The NPDES permit for USACOE's discharge is a permit renewal with no increase in discharged load. Permit renewals with the same discharged load as the previous permit are not considered to lower water quality from existing water quality. Thus, the Department finds that the discharge is not subject to an in-depth antidegradation review. (*Antidegradation Policy Implementation Internal Management Directive for NPDES Permits and Section 401 Water Quality Certifications, ODEQ March 2001*).

(2) Growth Policy. In order to maintain the quality of waters in the State of Oregon, it is the general policy of the Commission to require that growth and development be accommodated by increased efficiency and effectiveness of waste treatment and control such that measurable future discharged waste loads from existing sources do not exceed presently allowed discharged loads except as provided in section (3) through (9) of this rule.

Conclusion. An oil coalescing screen and terminal discharge filtration were added to the treatment system in September 2004. This has increased treatment effectiveness.

(9)(a)(C) The new or increased discharged load will not unacceptably threaten or impair any recognized beneficial uses or adversely affect threatened or endangered species. In making this determination, the Commission or Department may rely upon the presumption that if the numeric criteria established to protect specific uses are met the beneficial uses they were designed to protect are protected. In making this determination the Commission or Department may also evaluate other State and federal agency data that would provide information on potential impacts to beneficial uses for which the numeric criteria have not been set.

Conclusion. The identified beneficial uses in the Columbia River are as follows: public domestic water supply, private domestic water supply, industrial water supply, irrigation, livestock watering, anadromous fish passage, salmonid fish rearing, salmonid fish spawning, resident fish and aquatic life, wildlife and hunting, fishing, boating, water contact recreation, aesthetic quality, and commercial navigation and transportation.

Based on the reviews summarized above, the Department believes that the continuing load will not unacceptably threaten or impair any recognized beneficial uses. The discharge is river water, well water, and stormwater which has passed through an oil/water separator. The flow is very small compared to the flow of the river. The dilution ratio is over 300 000.

(9)(b) The activity, expansion or growth necessitating a new or increased discharge load is consistent with the acknowledged local land use plans as evidenced by a statement of land use compatibility from the appropriate local planning agency.

Conclusion. The USACOE facility is applying for renewal of an existing permit and is not seeking a new or increased discharge load. USACOE has an approved land use compatibility statement on file with Multnomah County.

(9)(c) Oregon's water quality management policies and programs recognize that Oregon's water bodies have a finite capacity to assimilate waste. Unused assimilative capacity is an exceedingly valuable resource that enhances in-stream values and environmental quality in general. Allocation of any unused assimilative capacity should be based on explicit criteria. In addition to the conditions in subsection (a) of this section, the Commission or Department may consider the following:

(A) Environmental Effects Criteria:

(i) Adverse Out-of-Stream Effects. There may be instances where the discharge or limited discharge alternatives may cause greater adverse environmental effects than the increased discharge alternative.

Conclusion. Not applicable to this situation.

(ii) Instream Effects. Total stream loading may be reduced through elimination or reduction of other source discharges or through a reduction in seasonal discharge. A source that replaces other sources, accepts additional waste from less efficient treatment units or systems, or reduces discharge loadings during periods of low stream flow may be permitted an increased discharge load year-round or during seasons of high flow, so long as the loading has no adverse effect on threatened and endangered species;

Conclusion. Not applicable to this situation.

(iii) Beneficial Effects. Land application, upland wetlands application, or other non-discharge alternatives for appropriately treated wastewater may replenish groundwater levels and increase streamflow and assimilative capacity during otherwise low streamflow periods.

Conclusion. Not applicable to this situation.

(9)(c)(B) Economic Effects Criteria:

(i) Value of Assimilative Capacity. The assimilative capacity of Oregon's streams is finite, but the potential uses of this capacity are virtually unlimited. Thus it is important that priority be given to those beneficial uses that promise the greatest return (beneficial use) relative to the unused assimilative capacity that might be utilized. In-stream uses that benefit from reserve assimilative capacity, as well as potential future beneficial use, will be weighed against the economic benefit associated with increased loading.

Conclusion. The assimilative or loading capacity is defined as "the greatest amount of loading that a water body can receive without violating water quality standards." The discharge will, on average, use 0.0003 percent of the river's 7Q10 flowrate. This discharge is not expected to use a significant portion of the Columbia River's assimilative capacity. The dilution ratio is over 300 000.

(ii) Cost of Treatment Technology. The cost of improved treatment technology, nondischarge, and limited discharge alternatives may be evaluated.

Conclusion. The currently proposed technology is appropriate. The OWS was overhauled in 2002 and new modifications including an oil coalescing screen, terminal discharge, and continuous monitors for oil and grease and temperature were installed in 2004.

As with all NPDES permits issued for facilities that propose to discharge wastewater to waters of the state, the proposed draft permit for the USACOE facility was drafted to ensure that all state wide water quality standards contained in OAR 340-041-0007 through 340-041-0053 and all basin-specific water quality standards would be achieved.

Each of the parameters listed is discussed below followed by the conclusions reached during this review.

340-041-0007

Statewide Narrative Criteria

(1) Notwithstanding the water quality standards contained in this Division, the highest and best practicable treatment and/or control of wastes, activities, and flows must in every case be provided so as to maintain dissolved oxygen and overall water quality at the highest possible levels and water temperatures, coliform bacteria concentrations,

dissolved chemical substances, toxic materials, radioactivity, turbidities, color, odor, and other deleterious factors at the lowest possible levels.

Conclusion. The proposed treatment is appropriate to meet this condition. The oil/water separator and coalescing screens have been working satisfactorily.

(2) Where a less stringent natural condition of a water of the State exceeds the numeric criteria set out in this Division, the natural condition supersedes the numeric criteria and becomes the standard for that water body. However, there are special restrictions, described in OAR 340-041-0004(9)(a)(C)(iii), that may apply to discharges that affect dissolved oxygen.

Conclusion. Not applicable in this situation. No less stringent natural condition has been identified. Therefore, the established numeric criteria will be used for this site.

(11) Fungi.

Conclusion. The facility's discharge is not expected to contain fungi or to promote their growth.

(12) Tastes, odors, or toxic or other conditions.

Conclusion. Based on the known pollutants in the facility's wastewater, the facility's discharge is not expected to create tastes or odors or toxic or other conditions deleterious to aquatic life or to affect potability of drinking water or palatability of fish or shellfish.

(13) Deposits.

Conclusion. The Bonneville Lock and Dam facility's discharge is not expected to contain material which would cause appreciable deposition in the river.

(14) and (15) Objectionable conditions and offensive aesthetic conditions.

Conclusion. Based on previous operation, the facility's discharge is not expected to cause offensive aesthetic conditions.

(16) Radioisotopes.

Conclusion. Radioisotopes are not used at the facility. The Bonneville Lock and Dam facility's discharge is not expected to contain radioisotopes.

Bacteria

Conclusion. There is no sewage connected with this discharge. The Bonneville Lock and Dam facility's discharge is not expected to contain bacteria.

340-041-0016

Dissolved Oxygen

(1) Dissolved oxygen (DO): No wastes may be discharged and no activities must be conducted that either alone or in combination with other wastes or activities will cause violation of the following standards: The changes adopted by the Commission on January 11, 1996, become effective July 1, 1996. Until that time, the requirements of this rule that were in effect on January 10, 1996, apply:

(a) For water bodies identified as active spawning areas in the places and times indicated on the following Tables and Figures set out in OAR 340-041-0101 to OAR 340-041-0340: Tables 101B, 121B, 180B, 201B and 260B, and Figures 130B, 151B, 160B, 170B, 220B, 230B, 271B, 286B, 300B, 310B, 320B, and 340B, (as well as any active spawning area used by resident trout species), the following criteria apply during the applicable spawning through fry emergence periods set forth in the tables and figures:

(A) The dissolved oxygen may not be less than 11.0 mg/l. However, if the minimum intergravel dissolved oxygen, measured as a spatial median, is 8.0 mg/l or greater, then the DO criterion is 9.0 mg/l;

(B) Where conditions of barometric pressure, altitude, and temperature preclude attainment of the 11.0 mg/l or 9.0 mg/l criteria, dissolved oxygen levels must not be less than 95 percent of saturation;

(C) The spatial median intergravel dissolved oxygen concentration must not fall below 8.0 mg/l.

Conclusion. Based on the pollutants known to be in the facility's wastewater, this discharge will not have a substantive BOD load.

340-041-0021

pH

(1) Unless otherwise specified in OAR 340-041-0101 through 340-041-0350, pH values (Hydrogen ion concentrations) may not fall outside the following ranges:

(a) Marine waters: 7.0 – 8.5;

(b) Estuarine and fresh waters: 6.5 – 8.5.

(2) Waters impounded by dams existing on January 1, 1996, which have pHs that exceed the criteria are not in violation of the standard, if the Department determines that the exceedance would not occur without the impoundment and that all practicable measures have been taken to bring the pH in the impounded waters into compliance with the criteria.

Main Stem Columbia River

(1) pH (hydrogen ion concentration). pH values may not fall outside the following range:
Columbia River (mouth to river mile 309): 7.0 - 8.5.

Conclusion. Based on a review of the discharge monitoring report data collected during the previous permit term, the proposed discharge from the facility is not expected to have a pH outside the range 7.0 - 8.5.

340-041-0028

Temperature

(4) Biologically Based Numeric Criteria. Unless superseded by the natural conditions criteria described in section (8) of this rule, or by subsequently adopted site-specific criteria approved by EPA, the temperature criteria for State waters supporting salmonid fishes are as follows:

(d) The seven-day-average maximum temperature of a stream identified as having a migration corridor use on subbasin maps and tables OAR 340-041-0101 to 340-041-0340: Tables 101B, and 121B, and Figures 151A, 170A, and 340A, may not exceed 20.0 degrees Celsius (68.0 degrees Fahrenheit). In addition, these water bodies must have coldwater refugia that are sufficiently distributed so as to allow salmon and steelhead migration without significant adverse effects from higher water temperatures elsewhere in the water body. Finally, the seasonal thermal pattern in Columbia and Snake Rivers must reflect the natural seasonal thermal pattern;

(8) Natural Conditions Criteria. Where the department determines that the natural thermal potential of all or a portion of a water body exceeds the biologically-based criteria in section (4) of this rule, the natural thermal potential temperatures supersede the biologically-based criteria, and are deemed to be the applicable temperature criteria for that water body.

(12) Implementation of the Temperature Criteria.

(a) Minimum Duties. There is no duty for anthropogenic sources to reduce heating of the waters of the State below their natural condition. Similarly, each anthropogenic point and nonpoint source is responsible only for controlling the thermal effects of its own discharge or activity in accordance with its overall heat contribution. In no case may a source cause more warming than that allowed by the human use allowance provided in subsection (b) of this rule.

(b) Human Use Allowance. Insignificant additions of heat are authorized in waters that exceed the applicable temperature criteria as follows:

(A) Prior to the completion of a temperature TMDL or other cumulative effects analysis, no single NPDES point source that discharges into a temperature water quality limited water may cause the temperature of the water body to increase more than 0.3 degrees Celsius (0.5 Fahrenheit) above the applicable criteria after mixing with either twenty five (25) percent of the stream flow, or the temperature mixing zone, whichever is more restrictive; or

(B) Following a temperature TMDL or other cumulative effects analysis, waste load and load allocations will restrict all NPDES point sources and nonpoint sources to a cumulative increase of no greater than 0.3 degrees Celsius (0.5 degrees Fahrenheit) above the applicable criteria after complete mixing in the water body, and at the point of maximum impact.

Conclusion. Based on temperature data submitted in the application, there is no reasonable potential for the facility's discharge to exceed temperature standards.

340-041-0031

Total Dissolved Gas.

(1) Waters will be free from dissolved gases, such as carbon dioxide hydrogen sulfide, or other gases, in sufficient quantities to cause objectionable odors or to be deleterious to fish or other aquatic life, navigation, recreation, or other reasonable uses made of such water

Conclusion. Total dissolved gas is a condition where gas is dissolved in the discharge above ambient concentrations. Water cascading over dams commonly entrains air to a supersaturated level. Elevated TDG can cause gas bubble disease in aquatic organisms. Because the water being discharged under this permit is not cascading over the dam, it is not expected to increase total dissolved gas above 110 percent of saturation.

340-041-0032

Total Dissolved Solids

The concentrations listed below may not be exceeded unless otherwise specifically authorized by DEQ upon such conditions as it may deem necessary: All Fresh Water Streams and Tributaries - 100 mg/L.

Main Stem Columbia River. 340-041-0104 (2) Total Dissolved Solids. Guide concentrations listed may not be exceeded unless otherwise specifically authorized by DEQ upon such conditions as it may deem necessary to carry out the general intent of this plan and to protect the beneficial uses set forth in OAR 340-041-0101:

(a) Main stem Columbia River (river miles 120 to 147 and 218 to 309) - 200.0 mg/L.

Conclusion. The Bonneville Lock and Dam facility's effluent is not expected to contain significant amounts of dissolved solids. There is no process going on which would contribute significant dissolved solids to the wastewater.

340-041-0033

Toxic Substances

(1) Toxic substances may not be introduced above natural background levels in the waters of the State in amounts, concentrations, or combinations that may be harmful, may chemically change to harmful forms in the environment, or may accumulate in sediments or bioaccumulate in aquatic life or wildlife to levels that adversely affect public health, safety or welfare, aquatic life, wildlife, or other designated beneficial uses;

(2) Levels of toxic substances in waters of the state may not exceed the criteria listed in Tables 20, 33A, and 33B.

Many toxic substances have limits set in OAR 340-041-Table 20. When appropriate, these limits are explicitly stated in NPDES permits. Some toxics are explicitly dealt with in promulgated TMDLs. See discussion below.

(a) Each value for criteria in Table 20 is effective until the corresponding value in Tables 33A or 33B becomes effective.

(A) Each value in Table 33A is effective on February 15, 2005, unless EPA has disapproved the value before that date. If a value is subsequently disapproved, any corresponding value in Table 20 becomes effective immediately. Values that are the same in Tables 20 and 33A remain in effect.

(B) Each value in Table 33B is effective on EPA approval.

Many toxic substances have limits set in OAR 340-041-Table 20. When appropriate, these limits are explicitly stated in NPDES permits. Some toxics are explicitly dealt with in promulgated TMDLs. See discussion below. The Reasonable Potential Analysis Spreadsheet is appended to this evaluation.

Conclusion. Based on knowledge of the facility's operations, the discharge is not expected to contain toxic substances exceeding applicable water quality standards. The applicant previously submitted metals data. For barium and arsenic the detection limit was low enough to confidently say that neither was present in the sample. The Department spoke with the testing laboratory's QA Coordinator about the lab report. She examined the raw lab data and concluded that the metals tested for were not present at low detection levels. Based on knowledge of the facility and the chemistry of the Columbia River, the Department has no reason to believe that the discharge from the OWS would have metals concentrations very different from those of the river water flowing through the dam.

The metals analysis submitted with the renewal application shows that the metal concentrations in stormwater should meet the stormwater benchmarks taken from the general stormwater permit.

340-041-0036

Turbidity

Turbidity (Nephelometric Turbidity Units, NTU): No more than a ten percent cumulative increase in natural stream turbidities shall be allowed, as measured relative to a control point immediately upstream of the turbidity causing activity.

Conclusion. Based on knowledge of similar facilities and previous operation, the discharge from the Bonneville Lock and Dam facility is not expected to affect instream turbidity. Since the water running through this system is either river water or rain water from concrete transformer drain cells, there should not be any noticeable increase in turbidity.

340-041-0046

Water Quality Limited Waters

(5) For water bodies designated as water quality limited under sub-section (b) of the definition of "Water Quality Limited" in OAR 340-041-0002, requests for load increases may be considered using the process set out in OAR 340-041-0004(9)(b) of this rule.

Conclusion: The Columbia River at this facility is listed as water quality limited for the following parameters:

Temperature	Summer
PCB	Year
	Around
Polynuclear Aromatic	Year
Hydrocarbons	Around
	Year
DDT Metabolite (DDE)	Around
	Year
Arsenic	Around

This discharge is not expected to increase the temperature of the Columbia River by a measurable amount. The facility does not use or generate any of the chemical constituents listed.

340-041-0103

Approved TMDLs in the Basin:

TMDLs have been approved for the following parameters:

Dioxin (2,3,7,8-
TCDD)

Total Dissolved Gas Year
 Around

This discharge is not expected to increase concentrations of any of the above parameters in the receiving stream by a measurable amount. The facility does not use or generate any of the chemical constituents listed.

340-041-0053

Mixing Zones

(1) The Department may allow a designated portion of a receiving water to serve as a zone of dilution for wastewaters and receiving waters to mix thoroughly and this zone will be defined as a mixing zone. There is no mixing zone in this permit.

(2)(d) Temperature Thermal Plume Limitations. Temperature mixing zones and effluent limits authorized under 340-041-0028(12) (b) will be established to prevent or minimize the following adverse effects to salmonids inside the mixing zone:

(A) Impairment of an active salmonid spawning area where spawning redds are located or likely to be located. This adverse effect is prevented or minimized by limiting potential fish exposure to temperatures of 13 degrees Celsius (55.4 Fahrenheit) or more for salmon and steelhead, and 9 degrees Celsius (48 degrees Fahrenheit) or more for bull trout;

(B) Acute impairment or instantaneous lethality is prevented or minimized by limiting potential fish exposure to temperatures of 32.0 degrees Celsius (89.6 degrees Fahrenheit) or more to less than 2 seconds);

(C) Thermal shock caused by a sudden increase in water temperature is prevented or minimized by limiting potential fish exposure to temperatures of 25.0 degrees Celsius (77.0 degrees Fahrenheit) or more to less than 5 percent of the cross section of 100 percent of the 7Q10 low flow of the water body; the Department may develop additional exposure timing restrictions to prevent thermal shock; and

(D) Unless the ambient temperature is 21.0 degrees or greater, migration blockage is prevented or minimized by limiting potential fish exposure to temperatures of 21.0 degrees Celsius (69.8 degrees Fahrenheit) or more to less than 25 percent of the cross section of 100 percent of the 7Q10 low flow of the water body.

Conclusion. This permit does not establish a regulatory mixing zone (RMZ) and a zone of initial dilution (ZID).

The criteria under 0053(2)(d) are addressed as follows:

- (A) There are no active spawning redds along the shore where the discharge passes.
- (B) Lethal temperatures are never reached at the edge of the mixing zone.
- (C) The 7Q10 flowrate of the Columbia River is about 90 000 cfs. The facility's maximum discharge flowrate is 0.29 cfs. The plume cross-section is less than 5 percent of the cross-section of the river and the flowrate is less than 5 percent of the 7Q10 flowrate.
- (D) The thermal plume is less than 25 percent of the cross section of the river.

COMPLIANCE HISTORY

There have been no instances of non-compliance during the last permit period.

PROPOSED PERMIT

The proposed permit is attached.

Stormwater requirements have been added to the permit.